

CONTRACTING PUBLIC TRANSPORT INFRASTRUCTURE: Recent experience with the Dutch High Speed Line and the Amsterdam North-South Metro Line

Presentation at the 11th International Thredbo Conference on Competition and Ownership in Land Passenger Transport, Delft University of Technology, September 21, 2009

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2003-2004 TCI: Dutch Parliamentary Inquiry Committee Infrastructure Projects, chaired by Adri Duivesteijn

Betuwe Line (Rotterdam-Rhein Ruhr Area)

High Speed Line South (Amsterdam-Belgium)

Research support by seven TPM-experts:

Hugo Priemus, Bert van Wee, Hans de Bruijn, Ernst ten Heuvelhof, Joop Koppenjan, Martin de Jong, Martijn Leijten

Hugo Priemus, Bent Flyvbjerg, Bert van Wee (eds.), 2008,

‘Decision-making on Mega-Projects: Cost-Benefit Analysis, Planning and Innovation’, Edward Elgar, Cheltenham/Northampton

High Speed Line South (Amsterdam-Belgium)

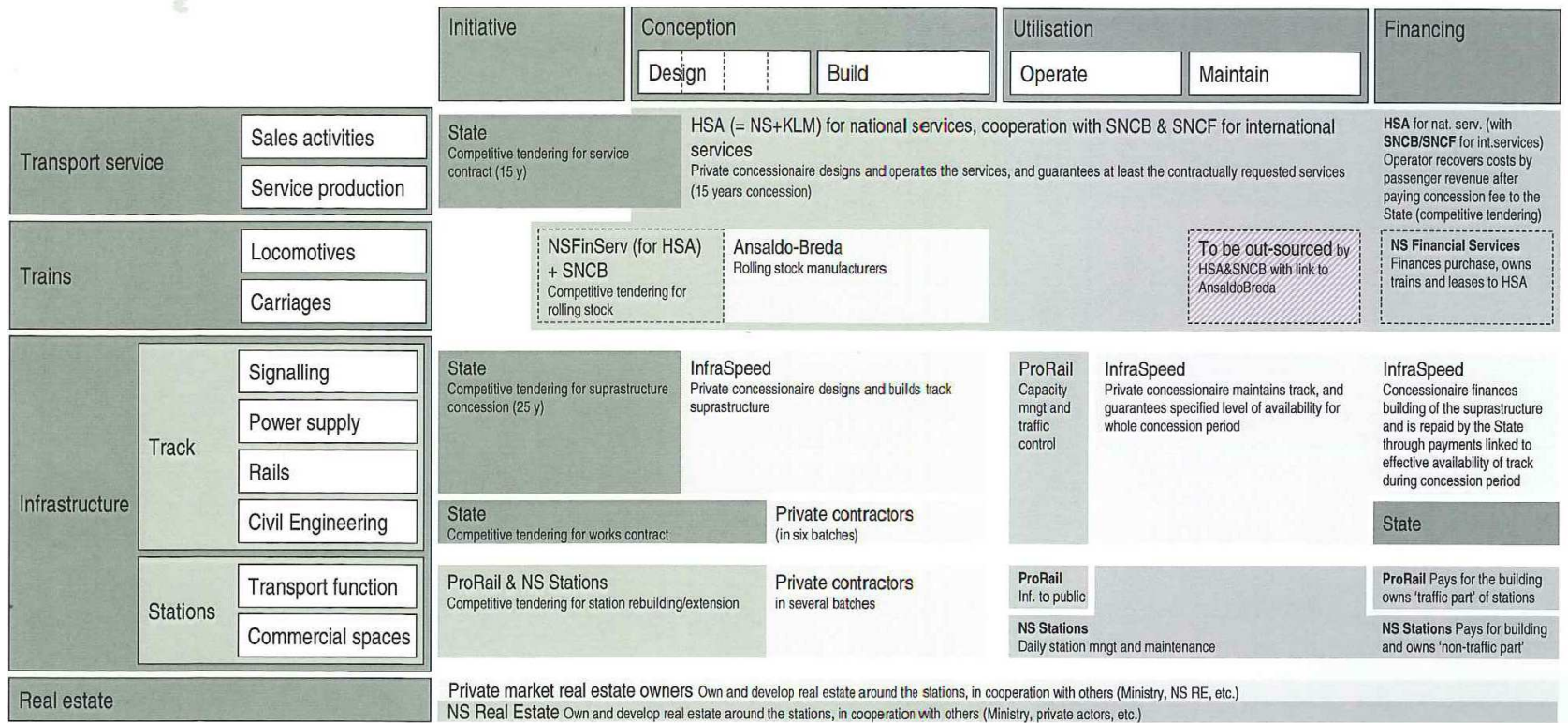
Transport services (15 years);

Infraprovider (DBFM: 25 years);

Substructure (D&C in 7 parts).

North-South Metro Line (Amsterdam)

16 contracts infrastructure.



Transport services HSL-South

1999-2001: concession for 15 year for both interior and international transport.

Four candidates:

1. Arriva Netherlands and Deutsche Bahn (Germany)
2. Connexion (NL), CGEA-Connex (France) and SJ International (Sweden)
3. NS Reizigers and KLM (later: High Speed Alliance: now HI Speed)
4. Stagecoach Holdings Plc (Great Britain)

Contract €148.4 million per year for the State.

Awarded to High Speed Alliance (HISpeed: 90% NS; 10% KLM).

After completion of HSL: two years delay because ERTMS safety system was not operational (no fall back option).

Recently operation has started: contract obligation may be too high. Risks for NS finally covered by the State.

Infraprovider HSL-South

1999-2001: Design; Construct; Finance & Maintain contract for 25 years awarded to Infrasppeed Consortium (BAM – NBM – Fluor Daniel – Siemens – Charterhouse – Innisfree).

There were four serious competing consortia: infrasppeed, Speed Rail, Zuid Rail Groep and Fastrail

Infraprovider HSL-South(2)

Stages:

Selection of candidates (pre-qualification).

Invitation to Consult (4).

Invitation to Tender (3).

Invitation to Modify Bids (3).

Invitation to Negotiate (2).

Best and Final Offer.

Contract: November 2001: €1.108 million.

Substructure HSL-South (1)

1 Mega-project? 21 Parts? Finally: 7 parts.

2001-2002 Parliamentary Committee on the Building Trade: revealed massive construction fraud and cartel forming.

The HSL substructure contracts were part of this.

Competition was fake. Bids were 40% higher than calculated budgets of Transport Ministry.

Substructure HSL-South (2)

Table 1. Contracts for HSL-Zuid (as of 28 June 1999).

| Region | Contracted work | Type of contract | Possible arrangements | Application deadline | Candidates after selection | Bidding procedure start date | Awarded (date) |
|----------------------------|---|-----------------------------------|-----------------------------|----------------------|----------------------------|------------------------------|------------------|
| Noordelijk Holland | ±15 km settlement-free plate, various viaducts and a pergola construction | D&C, partly in design competition | Lump sum/alliance | 12 February 1999 | Four | 10 May 1999 | 1 February 2000 |
| Tunnel under 'Green Heart' | 7.2 km tunnel at 15–20 metres, including ramps, shafts and escape corridors | D&C, design competition | Lump sum and incentive sent | 16 October 1998 | Five | 16 November 1998 | 11 December 1999 |
| Zuid-Holland Midden | ± Settlement-free plate, 3.5 km sunken bed and 4 km tunnel | D&C | Lump sum and incentive sent | 1 February 1999 | Four | 6 April 1999 | 1 February 2000 |
| Zuid-Holland Zuid | ±10 km settlement-free plate, two tunnels (Oude Maas and Dordtsche Kil) and bridge at Hollandsch Diep | D&C | Lump sum and incentive sent | 8 January 1999 | Five | 22 March 1999 | 1 February 2000 |
| Brabant Noord (HSL-A16) | ±11 km settlement-free plate, construction A16 and re-lay IC rail | D&C | Lump sum/alliance | 15 March 1999 | Five | 19 April 1999 | 15 December 1999 |
| Brabant Zuid (HSL-A16) | ±13.5 km settlement-free plate, construction A16 and re-lay IC rail | D&C | Alliance | 15 March 1999 | Five | 19 April 1999 | 15 December 1999 |
| Rail connections | Branch lines and adjustments to existing rail Hoofddorp-Rotterdam-Breda | D&C | Lump sum/alliance | 17 May 1999 | Not known | 15 June 1999 | 1 February 2000 |
| Infraprovider | Entire superstructure HSL-Zuid | D&C, finance & maintain | | 2 April 1999 | Four | 1 May 1999 | 1 July 2000 |

Source: TCI 2004.

Substructure HSL-South (3)

Design & Construct Strategy

Contracts were conservative and followed a defined illustrative set of traditional specifications.

Scope optimization:

In spatial sense (track/nodes/area).

In temporal sense (1-30 years).

Substructure HSL-South (4)

Table 2. Contracts awarded for civil engineering.

| Contract | Consortium | Participating companies | Date | Contracted sum (× million NLG) ^a |
|---|--|--|------------------|--|
| HSL-A4 Noordelijk Holland | Hollandse Meren | Ballast Nedam, Van Hattum, Vermeer | 16 July 2000 | 710 |
| Zuid-Holland Midden | HSL-Consortium Zuid-Holland Midden | NBM-Amstelland, HBG, Heijmans | 16 July 2000 | 866 |
| Zuid-Holland Zuid | HSL-Drechtse Steden | Ballast Nedam, Van Hattum & Blankevoort, Strukton | 16 July 2000 | 1105 |
| HSL-A16 Brabant Noord | HSL-Brabant | Ballast Nedam, Volker Stevin, Strukton, Boskalis, Vermeer | 16 July 2000 | 640 |
| HSL-A16 Brabant Zuid | HSL-consortium Brabant Zuid | HBG, NBM, Heijmans, Holzmann, HAM, Van Oord | 16 July 2000 | 997 |
| Total substructure | -- | -- | -- | 4318 |
| Tunnel 'Green Heart' | | Bouygues/Koop Tjuchem | 17 December 1999 | 941 |
| Connections to existing railway infrastructure | Aantakkingen Consortium | KWS, Ballast Nedam, NBM-Amstelland, HBG | 25 January 2001 | 458 |
| Total civil engineering works | -- | -- | -- | 5717 |

^a2.2 Dutch guilders (NLG) = €1 = US\$1.4.

North-South Metro Line (1)

16 contracts

2002: go-decision: 1.5 billion euro

2009: estimation (95% certainty): 3.1 billion euro

First round: Engineering & Construct (E&C)

Second round: Back to traditional RAW-specifications

North-South Metro Line (2)

Table 3. Seven North-South Line contracts

| Contract | Date of contract | First round 12-12- 2000 | Second round 25-10- 2001 | Third round 1-5- 2002 | Contract form | Contractor | Amount (x million euro) |
|--|------------------|-------------------------------|--------------------------------|-----------------------------|---------------|-------------------|----------------------------|
| Zinktunnel IJ | 10/2001 | | 0 | | RAW | Heijmans/Strukton | 54.2 |
| Passage Central Station | 5/2002 | | X | 0 | RAW | Strukton/Van Oord | 155.1 |
| Caissons Damrak | 5/2002 | | 0 | | RAW | Heijmans | 26.9 |
| Drilling tunnels and mitigating measures | 12/2000 | 0 | | | E&C | Saturn | 135.5 |
| Rokin Station | 10/2001 | X | 0 | | RAW | Max Bögl | 223.2 |
| Vijzelgracht Station | 5/2002 | X | X | 0 | RAW | Max Bögl | |
| Ceintuurbaan Station | 5/2002 | X | X | 0 | RAW | Max Bögl | |
| Total | | | | | | | 594.9 |

X = unsuccessful contracting procedure

0 = successful contracting procedure

North-South Metro Line (3)

First round of contracts (1)

Three deep stations:

Rokin

Vijzelgracht

Ceintuurbaan

drilling tunnels.

Six contractors invited (closed procedure).

E&C: aim = stimulate innovation.

Results: dissatisfactory

North-South Metro Line (4)

First round of contracts (2)

November 2000: invitation to tender: price without risks + catalogue of risks with a price per risk.

Risk fund + bonus scheme for contractors.

Bids: 1,5 – 2 times higher than budget municipality.

Only contracting drilling tunnels successful: awarded to Saturn.

North-South Metro Line (5)

First round of contracts (3)

Lloyds & Horvat: budget municipality 10%-30% too low.

Contract Saturn included Risk Assessment and Allocation Catalogue (RAAC).

Concern for contractors: technological risks, common domain, environment, negative image of political decision-making in Amsterdam.

Lack of real competition.

North-South Metro Line (6)

Second round of contracts (1)

Contracts from E&C to traditional RAW.

Bidding documents for the first time also in English: October 25, 2001

Three contracts successful: Zinktunnel IJ, Caissons Damrak and Rokin Station.

Prices 20% and more too high: Vijzelgracht Station, Ceintuurbaan Station and Central Station.

One German contractor: Max Bögl, could not find Dutch subcontractors. No subcontractor price for earthwork, deep walls and jetgrouten.

North-South Metro Line (7)

Second round of contracts (2)

Vijzelgracht station: difference budget-bid very high.

Contractor Heijmans-Holzmann collaborated with subcontractor Soletanche.

January 24, 2002: Email director Heijmans to Soletanche by accident received by Municipality.

Revealed earlier cartel agreement (ultimo 2000) between Heijmans and Soletanche to exclude others.

Holzmann: in financial trouble. Bid Heijmans-Holzmann declared invalid.

Dutch Competition Authority (NMa) declared Heijmans and Soletanche guilty (December 18, 2001): € 50,000 penalty.

North-South Metro Line (8)

Third round of contracts

Invitation to submit a reduced price.

Contracts awarded for Vijzelgracht Station and Ceintuurbaan Station to Max Bögl (was already contracted for Rokin Station).

Bögl: price for three stations together.

North-South Metro Line (9)

After the contracting rounds: renegotiation of contracts.

Parts of contracts shifted to common domain.

Drilling tunnels: risk factor = speed of the drilling engine: 12 meter per day. All risks for the Municipality. Risk funds introduced.

A large number of surprises occurred: increasing the costs for the Municipality. Many differences of interpretation of contract formulations. Fuzzy formulations.

Central Station: two mediators were hired about the length of the implementation:

Municipality: 387 weeks; contractor: 567 weeks;

agreement: 480 weeks. Result: higher costs for the Municipality.

North-South Metro Line (10)

Technological problems (high press coverage):

- leakages in the building excavations;
- damage to a number of buildings close to the metro track.

Construction activities were stopped.

Alderman Herringa stepped down.

Recommendation Veringa Committee: continue the works.

September 4, 2009: Start Inquiry Committee of Council Members, chaired by Maurice Limmen, to reconstruct what happened in the past and to learn lessons.

North-South Metro Line (11)

Conclusions (1)

1. Strategic importance of North-South Line undisputed.
2. Go-decision too early: Municipality was not in control.
3. Cartel forming and building fraud.
4. Foreign contractors largely excluded.
5. Technological and interface issues underestimated by Municipality. Gap between budget and bid: 50-100%. Bridged by virtual measures.

North-South Metro Line (12)

Conclusions (2)

6. Municipality is not in control at the moment.
Interactions between 16 contracts; contracts and environment.
15 Top risks need additional reservation of 500 million euro.
North-South Line is ready in 2016 or 2019.
Costs: 3.1 billion euro (according to Veerman-Committee); this was 1.5 billion euro at the start.

North-South Metro Line (13)

Conclusions (3)

7. Municipality Board entrapped in micro-management.
Dividing line public-private: blurred and changing.
8. Contracts about operation of N-S line and management of stations: still to be made.
9. Final evaluation: too early now.
Two years after start operation (about 2020): time for final evaluation. Many lessons to be learnt.
10. Rethink public domain in preparing, constructing and operating large public transport infrastructure.

Preliminary conclusions

1. Experience with innovative contracts (E&C; D&C; DBFM) in the Netherlands determined by a long tradition of cartel forming in building industry.
2. Do not underestimate the danger of cannibalism of new public transport infrastructure in relation to existing public transport networks.
3. Innovative contracts: exciting in theory, disappointing in practice.
4. Deal flow of innovative contracts: too small. Transaction costs too high.
5. Go-decision: only to be taken when public authorities are in control. Otherwise: cost overruns, time delays.

Preliminary conclusions

6. Clear demarcation of public and private responsibilities before and after go-decision is essential. Responsibility public authority: clearly defined and related to public values and public finance.
7. Make project flexible and resilient. Maintain alternatives and options in each stage of decision-making.
8. Innovative contracting in public transport infrastructure in the Netherlands is still in its infancy.